COMPUTER BITS

By Stan Veit
Computer Editor

News from the Computer Shows

SOME major computer shows are over, everybody has gone home, and it is time to evaluate the wonders exhibited there. Houston, Texas hosted the National Computer Conference (NCC) and it was a "Texas-size" event indeed with over 90,000 people attending. Atlantic City, NJ, the former home of the eastern computer shows returned as an exhibit site for COMDEX and attracted Independent Sales Organizations from all over the world. Both shows were a success as showcases for a new generation of small desktop and portable computers.

At the NCC, it seemed every manufacturer had a new personal computer. Similarly, companies that had previously produced only mainframe computers or large minis introduced microcomputers and those that had been in the personal-computer business were showing portable machines. Many of the new offerings were built around 8/16-bit processors or 16/32-bit processors. However, some of the large mainframe manufacturers showing personal computers gave the impression that they just had a toe in the water and they might not really produce the machines they were showing.

The 8086/8088 family from Intel and the M68000 family from Motorola have won the competition to become the dominant microprocessor chips of the eighties. This fact was obvious from the number of computers using one or the other of these sixteen-bit microprocessor chips. In spite of this, the Z80 has won a new lease on life because many of the new computers support the older processor as a "slave" or secondary processor. The TRS-80 Mod 16 is a typical example. It uses the 68000 as the main processor, but also has a Z80 to run the existing Mod II software. Even the IBM PC, which uses the 8088, operates with a plug-in Z80.

The "Battle of the Operating Systems" was not much in evidence at either NCC or COMDEX. CP/M was the main operating system for 8-bit systems, while MDOS (PC DOS) was the main system shown for 8088/8086 computers. The competing system from Digital Research, CP/M-86, did not seem to be used as the primary operating system for many of the new offerings although it is offered as an alternate on almost all of the 8088/8086-based systems. UNIX™ was much talked about as a future 16/32-bit operating system, but few new computers are using it at this time. Fortune Computer's 16:32 Computer, with the M68000, was one of the new computers now using Unix. The Charles River Data System's Universe 68 series of 68000 computers and the 16-bit Onyx Computers are others.

As more 68000 systems come into use, UNIX will likely become a stronger competitor. A lot will depend upon Radio Shack's choice of a M68000 Operating System for the Mod 16. If Radio Shack adopts UNIX, it will be the most used 16-bit microcomputer operating system. If Radio Shack decides on a system unique to TRS-80 Mod 16, UNIX will still be a strong contender and the Mod 16 might suffer from lack of software. The UCSD P-System (UCSD Pascal) grew in strength as it was adopted as a secondary operating system for more computers. It stands today as the only transportable microcomputer operating system. It is already so well established that it is number two among software operating systems. However it is number two on almost all the computers where something else is number one! Not a bad position to be in for any product, though.

Portables were the main hardware innovation at both NCC and COMDEX. They come in three sizes. The first is the suitcase size represented by the Osborne 1 and similar machines. The next size is the briefcase size such as the Epson HX-20, the Compass, the Sony Typecorder, and the Teleram, all of which fit in a briefcase or attache case. The smallest size is the hand-held computers.

The Osborne 1 has a new front panel that makes the unit physically more attractive. There is also a double-density version and a modification kit that retrofits this needed improvment to all previous units. The addition of double density permits the release of a large body of CP/M software in Osborne format. This makes the Osborne 1 a much more useful computer. As a bonus, the Osborne Computer Co. is giving users the UCSD runtime package for its machines. While this alone does not permit the running of Pascal on the Osborne, it does allow many application programs written in UCSD Pascal to be run on the machine.

The success of the Osborne 1 has apparently impressed others as some computer companies have rushed their versions of a portable computer into prototype production. The Kaycomp II from Non-Linear Systems, for example, offers most of the Osborne 1 features at the same price, but it includes a 9″ CRT instead of the 5″ CRT used in the Osborne. Since this is one of the shortcomings of the Osborne 1, the Kaycomp II could be a strong competitor.

The Fox from Digital Microsystems is another portable from one of the established manufacturers. It offers the advantage of being compatable with a broad library of CP/M software that can run on larger machines.

Morrow Design's Micro Decision is another portable offering all of the features of the Osborne 1, including either one 200K drive or two drives that store 400K. The Morrow computers only cost $1195 for the single-drive model or $1545 for the double-drive computer. Neither model comes with a video monitor, but for the difference in price, the user can select any size or quality monochrome monitor desired.

A new company, Janos Ltd., of Anaheim, CA, offers some innovative portable computer designs. The Courier Portable features a 9″ CRT, a Z80A CPU with 64K of memory, and a serial interface. The computer uses the Standard Bus and provides five card slots for system expansion. The disk drive is the new Sony $3^1/_2$″ system that stores 322K bytes per disk. The Janos Courier is priced at $3995, twice the cost of the Osborne 1, but it offers many additional features. Janos has another model with two removable 5-megabyte hard-disk cartridges in place of the floppy disks. This is the ultimate in portable computer data storage: 10 megabytes of data storage in a package you carry like a suitcase!

From Canada comes the Hyperion Portable Computer made by Dynalogic Infotech of Ottawa. This was easily the most attractive design at both of the shows. It is a portable compatable with the IBM PC computer, running the Microsoft MS DOS Operating System with advanced disk BASIC. It has both serial and parallel I/O ports and is compatable with the IBM PC printer, or other Epson or Centronics-type printers. It includes a built-in 300-baud modem for data communications and a time and date clock with battery back-up.

The Hyperion weighs 20 lb and measures only 18″ W by 10″ D by 8½ ″H. The keyboard stores in the case and the entire assembly fits into a vinyl carrying case. The Hyperion costs $4999 but its IBM compatability and design features will make it attractive to many users.

Another portable that attacted a lot of attention at both the NCC and the COMDEX shows was the Otrona which was the subject of an article in the June issue of this magazine.

The briefcase class of computers and terminals also aroused much interest. The Compass computer by Grid Systems features a fold-down, flat electroluminescent screen with a 24- line by 53-character display with horizontal scrolling. All of the other briefcase-size units either show a single line or, in the case of the Epson HX-80 and the Teleram T-3000, a four-line display. The Compass is still in the early production stage. It is priced at over $8000, but it represents the logical future of portable computers.

The Epson HX-20 is a more affordable briefcase system, packing a powerful computer into an 11″ × 8½″ × 1¾″ package. It contains two CMOS 6301 CPUs, 16K of RAM memory (expandable to 32K) and 32K of ROM memory (expandable to 64K), a 24-character by 4-line display with horizontal scrolling to 255 characters. A dot-matrix printer is included as well as an RS-232C port. Parallel interfaces are provided for connection to a standard Epson printer, a bar-code reader, the cassette, and an extension of the system bus. An optional microcassette is available too. This is mounted in the front panel and makes the HX-20 a complete self-contained computer system.

The Teleram-3000 features bubble memory data storage and the ability to run the popular CP/M operating system. This is made possible by a low-power version of the Z80 CPU, 64K of RAM, and 4K of ROM. The bubble memory simulates the Drive A required by CP/M and the display is 80 characters by 4 lines. Provision is made to add an expansion unit for office use. This permits the installation of up to four external disk drives, a video monitor, and other perhiperals. At the less that $3000 price quoted, the Teleram will find many users who want more portability than is offered by the suitcase-size machines.

Handheld computers were represented by the Sharp 1500 which also is sold under the Radio Shack label and the Matsushita brand which is sold by Panasonic, Quasar, and Olympic, as well by the designers, Friends Amis. The Sharp 1500 features increased memory over its previous version and an interface to a four color printer/plotter. This is one of the most ingenious peripherals ever developed for a small computer. It produces printing in several sizes and colors and can plot histograms, line graphs, and even pie charts.

The Panasonic (Quasar, et al) unit has an interconnecting bus unit with peripherals that plug-in producing an attachecase computer system composed of the computer, a small printer, a modem with communications software in ROM, and a video unit with both a color graphics display and a black and white display. There is also a bus extension and an RS-232C interface. Memory expansion units can be plugged in to expand the memory up to 56K. In addition, there is a plastic connector unit that permits any two units to be connected without the main interconnecting unit. The computer uses both Microsoft BASIC and a Forth-like language called Snap. The CPU is a 6502 and the Apple II+ can be used as a development system to develop Snap programs. All of the versions of the system are identical, except that Friends Amis have developed their own expansion capability using a holding device called the "Datashuttle." This holds the basic HHC and adds up to 40K of nonvolatitle RAM. It has interfaces for a modem, a tape casette, an RS-232C interface, an ac adapter, and battery charger. It retains the standard parallel connector for peripherals and the bus expander. →

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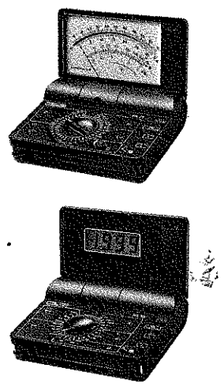

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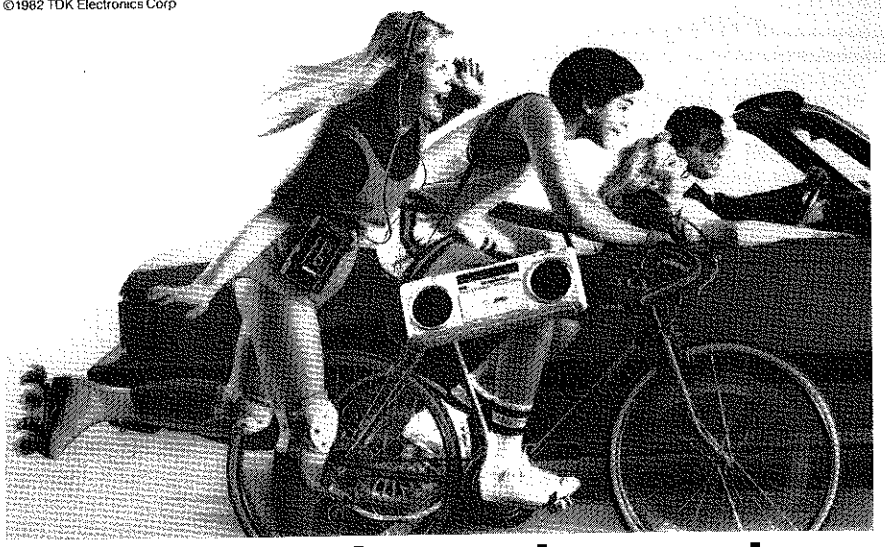

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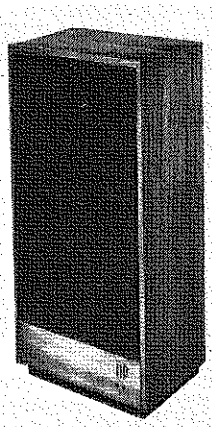

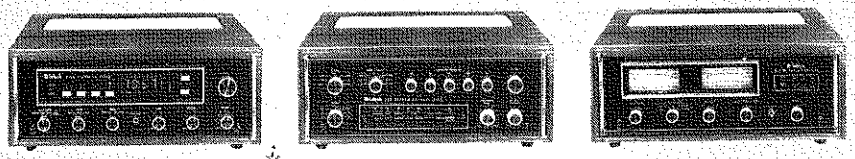

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computers

In spite of the emphasis on portable computers, many companies introduced standard desktop and rack-mounted machines. Digital Equipment Corporation entered the personal computer field with four new computers. The first of these, the Rainbow, marked the first time that DEC has ever used an outside CPU and operating system. The Rainbow features a Z80 processor and uses the CP/M operating system and software. The other new DEC computers use a new LSI version of the PDP-11/23 and the standard DEC operating systems. One new machine is an updated word processor based on the PDP8 series.

Zenith has also departed from its usual bus and operating system by introducing the Z100 series of desktop computers. The Z100 represents Zenith's 8088/8086 16-bit generation. The series consists of two types of computers. The Series 110 is a low-profile color computer with no monitor. The Z120 is a one-piece cabinet with a built-in monitor. Both have 128 bytes of dynamic RAM, expandable to 196K on the main board. Both also have dual 5¼" drives with 48 tracks and use double-density, double-sided media. Optional 8" drives are available and a Winchester technology hard-disk drive will be available soon. I/O consists of both serial RS-232C ports and a Centronics-compatable parallel port. In one of its most important departures from the past, Zenith has adopted the S-100 bus for memory expansion and peripheral interface. The memory can be expanded up to 768K bytes using S-100 memory boards. The color unit offers eight colors with color memory standard in the Z120 and optional in the Z110. The dispay format is 24 lines of 80 characters, with 225 lines of 640 dots available for graphics. Video output for the Z120 is RGB and either monochrome or RGB for the Z110. Zenith also introduced its new terminal for use with Videotext services.

By far the most innovative thing at the NCC was not at the Astrodome. We were taken to a distant hotel and shown a new approach to computing. However, we were requested to sign a nondisclosure agreement before we were shown this wonder. We can say this much, however. It is a computer system and it operates in the same manner as a human mind. It can stop one operation and do another, then go back to the first, without missing anything. It is super "user friendly" and will work for the new user as well as the most experienced computer operator. This is no "blue sky" operation. It is the joint effort of some of America's most talented designers and Japan's precision manufacturers. It will be on the market in the last quarter of 1982. We predict that it will change the way people think about "personal computers." ◇